

KÄHLER EXTENSION AND REDUCTION OF CONTACT MANIFOLDS

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In this talk we consider a differentiable manifold X with a contact form η and a given Lie group G of symmetries. If G is connected and acts properly on X we show that X can be realized as a G -invariant totally real submanifold of a Stein manifold Z . More precisely there is a G -invariant Kähler potential $\rho: Z \rightarrow \mathbb{R}$ such that up to normalization $\eta = d^c \rho = d\rho \circ J$ holds where J denotes the complex structure given on the tangent bundle TZ of Z . In this setup one can apply the procedure of Kähler reduction. This gives a notion of a reduced singular contact space as well as an extension of the reduced contact structure as a Kähler structure at the level of quotients.